ABSTRACT OF THE DISCLOSURE

The present invention provides a method for reliably detecting change in the 3-D

shape of objects. It uses an estimate of the accuracy of the 3-D models derived from a set

5 of images taken simultaneously. This accuracy estimate is used to distinguish between

significant and insignificant changes in 3-D models derived from different image sets. In

one embodiment of the present invention, the accuracy of the 3-D model is estimated

using self-consistency methodology for estimating the accuracy of computer vision

algorithms. In another embodiment of the present invention, resampling theory is used to

10 compare the mean or median elevation for each change in the models. This methodology

allows for estimating, for a given 3-D reconstruction algorithm and class of scenes, the

expected variation in the 3-D reconstruction of objects as a function of viewing geometry

and local image-matching quality (referred to as a "score"). Differences between two 3-D

reconstructions of an object that exceed this expected variation for a given significance

15 level are deemed to be due to a change in the object's shape, while those below this are

deemed to be due to uncertainty in the reconstructions.

SRI-P4089/JPH/MJB